CLAIMS:

1. A method of manufacturing rare-earth sintered magnets, characterized by subjecting an alloy composed of 20 to 30 wt% of a constituent R (R being samarium alone or at least 50 wt% samarium in combination with one or more other rare-earth element), 10 to 45 wt% iron, 1 to 10 wt% copper and 0.5 to 5 wt% zirconium, with the balance being cobalt and inadvertent impurities, to the steps of, in order, melting, casting, coarse size reduction, milling, molding in a magnetic field, sintering and aging so as to form a sintered magnet, surface machining the sintered magnet by cutting and/or grinding, metal plating the surface-machined magnet, then heat treating the metal-plated magnet at 80 to 850°C for a period of from 10 minutes to 50 hours.

2. The rare-earth sintered magnet manufacturing method of claim 1, characterized in that the metal-plating metal is one or more selected from among copper, nickel, cobalt, tin, and alloys thereof.

3. The rare-earth sintered magnet manufacturing method of claim 1 or 2, characterized in that the heat treatment is carried out in an argon, nitrogen, air or low-pressure vacuum atmosphere having an oxygen partial pressure of 10^{-4} Pa to 50 kPa.

4. A rare-earth sintered magnet composed of 20 to 30 wt% of a constituent R (R being samarium alone or at least 50 wt% samarium in combination with one or more other rare-earth element), 10 to 45 wt% iron, 1 to 10 wt% copper and 0.5 to 5 wt% zirconium, with the balance being cobalt and inadvertent impurities, which rare-earth sintered magnet is characterized by having on a surface thereof, either directly or over an intervening metal-plating layer, a metal oxide layer and/or a metal nitride layer.

5. The rare-earth sintered magnet of claim 4, characterized in that the metal-plating layer and the metal oxide layer and/or metal nitride layer have a combined thickness of at least 1 μm but not more than 100 μm, and the metal oxide layer and/or metal nitride layer has a thickness of at least 0.1 μm but not more than 100 μm.

6. The rare-earth sintered magnet of claim 4 or 5, characterized in that the metal-plating metal is one or more selected from among copper, nickel, cobalt, tin, and alloys thereof.

7. A method of manufacturing rare-earth sintered magnets, characterized by subjecting an alloy composed of 20 to 35 wt% of a constituent R (R being one or more rare-earth element selected from among neodymium, praseodymium, dysprosium, terbium and holmium), up to 15 wt% cobalt, 0.2 to 8 wt% boron, and up to 8 wt% of one or more element selected from among nickel, niobium, aluminum, titanium, zirconium, chromium, vanadium, manganese, molybdenum, silicon, tin, gallium, copper and zinc as an additive, with the balance being iron and inadvertent impurities, to the steps of, in order, melting, casting, coarse size reduction, milling, molding in a magnetic field, sintering and heat treatment to form a sintered magnet, surface machining the sintered magnet by cutting and/or grinding, metal plating the surface-machined magnet, then heat treating the metal-plated magnet at 80 to 700°C for a period of from 10 minutes to 50 hours.

8. The method of manufacturing rare-earth sintered magnets according to claim 7, characterized in that the metal-plating metal is one or more selected from among copper, nickel, cobalt, tin, and alloys thereof.

9. The method of manufacturing rare-earth sintered magnets according to claim 7 or 8, characterized in that heat treatment after the metal plating is carried out in an argon, nitrogen, air or low-pressure vacuum atmosphere having an oxygen partial pressure of 10^{-4} Pa to 50 kPa.

10. A rare-earth sintered magnet composed of 20 to 35 wt% of a constituent R (R being one or more rare-earth element selected from among neodymium, praseodymium, dysprosium, terbium and holmium), up to 15 wt% cobalt, 0.2 to 8 wt% boron, and up to 8 wt% of one or more element selected from among nickel, niobium, aluminum, titanium, zirconium, chromium, vanadium, manganese, molybdenum, silicon, tin, gallium, copper and zinc as an additive, with the balance being iron and inadvertent impurities, which rare-earth sintered magnet is characterized by having on a surface thereof, either directly or over n metal-plating layers (n being an integer such that $n \geq 1$), a metal oxide layer and/or a metal nitride layer.

11. The rare-earth sintered magnet of claim 10, characterized in that the metal-plating layer and the metal oxide layer and/or metal nitride layer have a combined thickness of at least 1 μm but not more than 100 μm, and the metal oxide layer and/or metal nitride layer has a thickness of at least 0.1 μm but not more than 100 μm.

12. The rare-earth sintered magnet of claim 10 or 11, characterized in that the metal-plating metal is one or more selected from among copper, nickel, cobalt, tin, and alloys thereof.